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ABSTRACT

Presented is a listing of books recommended by the Mathematical Association of the United Kingdom that focus on Mathematical Applications. The following information on each book is provided: author; title; publisher; cost to the nearest pound; categories of use; and a code that indicates if the book in question is out of print, reprinted, and/or highly recommended. Brief annotations are provided with many of the entries. (MP)

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BOOKLISTS

**For the Teaching of Mathematics
in Schools**

APPLICATIONS of MATHEMATICS

(REF: APP)

**prepared by a sub-committee
of the Teaching Committee
of the
Mathematical Association**

THE MATHEMATICAL ASSOCIATION

May 1980

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Information on each book is displayed in the following format:

Author	Title		
Publisher	Cost	Categories of use	Code
Annotation			

Cost Given to the nearest f above.

Code Symbols

- * Highly recommended.
- O Out of Print.
- R Reprinting.

Categories of use

- A Applications - to science, geography, economics.....
- B Background and reference books for teachers.
- C Content - mathematical topics (not above 1st year University level).
- E Mathematical Education - eg. for 'Diploma' students.
- J/K Primary school teachers (4-11 yrs)/and pupils.
- L/M Lower secondary school teachers (11-16)/and pupils.
- P/Q Practical and constructional work, books for teachers/pupils.
- T Teaching method.
- U/V Sixth-form teachers/and pupils.
- Z Puzzles, problems, games and recreational mathematics.

Details of lists available are shown outside back cover.

PREFACE

The lists have been prepared by a sub-committee of Teaching Committee, and edited by F.R. Watson. A data-processing program written by Dr. K.H. Bennett (University of Keele) was used to extract the sublists and print them alphabetically.

Very many people have contributed to the production of these lists, in a variety of ways. In particular, thanks are due to the staff of the Education Library and of the Computer Centre, University of Keele, and to the members of the sub-committee, and many others who supplied information and comments.

It is intended to up-date the lists at fairly frequent intervals. We cannot hope to have avoided all errors and your suggestions are invited; they will help to improve the lists.

Comments on the lists, or notification of errors and omissions will be welcomed. Please address correspondence to the Secretary, Booklists Sub-committee, c/o Mathematical Association, 259 London Road, Leicester.

F.R.W.

May 1980

- ADLER, I. GIANT GOLDEN BOOK OF MATHEMATICS - EXPLORING THE
WORLD OF NUMBERS AND SPACE. AJKLM
GOLDEN PRESS, N.YORK 1958, 1960
(WESTERN PUBLISHING CO. INC.,
1220 MOUND AVE, RACINE WI 53404, USA)
+ (PP 56)
- ANDREWS, J.G. & MCCLONE R.R., MATHEMATICAL MODELLING.
EDS. BUTTERWORTHS, 1976. 4 ABCU *
+ (G418, CASE STUDIES - ABOUT USING SPECIFIC MODELS, RATHER THAN THE
PROCESS OF MODELLING, PP. 260)
- ATKIN HEINEMANN, 1974 MATHEMATICAL STRUCTURE IN HUMAN AFFAIRS
A
- ATKIN, R.H. MATHEMATICS AND WAVE MECHANICS.
HEINEMANN, 1964 ABCU
+
- BATTERSBY, A. MATHEMATICS IN MANAGEMENT. 1+ ABLUV *
+ PENGUIN, 1966.
(G380, USEFUL GUIDE OPERATIONAL RESEARCH PP. 256)
- BELL, M.S. MATHEMATICAL USES AND MODELS IN OUR EVERYDAY
WORLD A
+ SCHOOL MATHEMATICS STUDY GROUP, 1972
(STUDIES IN MATHEMATICS, VOL XX)

- BELL, M.S. (ED) SOME USES OF MATHEMATICS: A SOURCE BOOK FOR
TEACHERS AND STUDENTS OF SCHOOL MATHEMATICS
SCHOOL MATHEMATICS STUDY GROUP, 1967 A
+ (STUDIES IN MATHEMATICS, VOL XVI)
- BRADFORD, M.G. AND KENT, HUMAN GEOGRAPHY, THEORIES AND THEIR APPLICATIONS
W.A. ABCLUV
+ OUP, 1977 (G419, SOME MATHEMATICAL MODELS USED IN GEOGRAPHY PP180)
- BURKHARDT, H. SEVEN SEVENS ARE FIFTY? - MATHEMATICS FOR THE
REAL WORLD. INAUGURAL LECTURE.
SHELL CENTRE FOR MATHEMATICAL EDUCATION ABLEU
+ UNIVERSITY OF NOTTINGHAM.
- CAMPBELL, R.C.. STATISTICS FOR BIOLOGISTS.
CUP, 2ND EDN, 1974. 5 ABUV
+ (G405, USEFUL FOR TEACHERS, REQUIRES MINIMAL MATHEMATICAL
BACKGROUND, PP. 385)
- CHELLINGSWORTH, W. MATHS FOR CIRCUITS. ACU O
+ MACRILLAN, 1964.
- CRANK, J. MATHEMATICS AND INDUSTRY. 16 ABCLUV
+ OXFORD, 2ND EDN., 1975
- CUMM/MAA CASE STUDIES IN APPLIED MATHEMATICS
COMITEE OF THE UNDERGRADUATE PROGRAM IN A
+ MATHEMATICS/MATHEMATICAL
ASSOCIATION OF AMERICA 1976

- | | | | |
|--|--|----|-------------|
| CURTIS | LINEAR ALGEBRA, AN INTRODUCTORY APPROACH | | |
| ALLYN AND BACON, 1974, 3RD ED. | | 9 | CA |
| (INCLUDES DETAILED DISCUSSION OF SOME APPLICATIONS) | | | |
| DAISH, C.B. | THE PHYSICS OF BALL GAMES. | | |
| ENGLISH UNIV.PRESS. | | 34 | ABQV |
| (G401, PP180) | | | |
| DALTON, R. ET AL | NETWORKS IN GEOGRAPHY. | | |
| G. PHILIP, 1973 | | | ALMPQV |
| DICKINSON, G.C. | STATISTICAL MAPPING AND THE PRESENTATION OF STATISTICS | | |
| EDWARD ARNOLD, 1963, 1ST ED | | 2 | U V B C E A |
| (A WIDE VARIETY OF GOOD AND BAD WAYS OF PRESENTING DATA) | | | |
| EHF-ERG, A.S.C. | DATA REDUCTION. | | |
| WILEY, 1975. | | 5 | ABTU |
| (UNUSUAL APPROACH TO BASIC STATISTICS BUT GOES QUITE FAR) | | | |
| ENGINEERING CONCEPTS | MAN MADE WORLD | | |
| CURRICULUM PROJECT | | | |
| McGRAW-HILL, 1971 | | | A |
| (ECOP, POLYTECHNIC INSTITUTE OF BROOKLYN) | | | |
| FITZGERALD, B. P. | DEVELOPMENTS IN GEOGRAPHICAL METHOD. | | |
| OUP, 1974. | | 2 | ABUY |
| (M154, 1 APPLICATIONS OF STATISTICS AND TRANSFORMATIONS OF SPACE) | | | |
| HAGGETT, P. AND CHORLEY, R. | NETWORK ANALYSIS IN HUMAN GEOGRAPHY. | | |
| D. | | | |
| ARNOLD, 1969. | | 3 | ACU |
| (UNIVERSITY GEOGRAPHERS' TEXT) | | | |
| HAMMOND, R. AND McCULLAGH, P.S. | QUANTITATIVE TECHNIQUES IN GEOGRAPHY | | |
| OUP, 1974 | | 4 | ALU |
| HOLT, M. AND MARJORAM, D.T.E. | MATHEMATICS IN A CHANGING WORLD. | | |
| HEINEMANN ED., 1973. | | | ABLU |
| (G403, MIS 3, 4, 000 SELECTION OF APPLICATION - SCIENCE, ECONOMICS GEOGRAPHY, GOOD ON PRACTICAL USES; PP293) | | | |

- INSTITUTION OF MECHANICAL ENGINEERS. ENGINEERING HERITAGE.
ENGINEERS. AHB *
- + HEINEMANN, 1963
(FULL OF HISTORICAL AND BIOGRAPHICAL ARTICLES; ENGINEERING IN
BROADEST SENSE) 0
- JONES, G.T. SIMULATION AND BUSINESS DECISIONS.
PENGUIN, 1972. ALUV 0
- + (RANDOMNESS IN A REAL SETTING)
- KLEIN, R.J. (TRS) MATHEMATICS AND SPORTS
UNIVERSITY OF CHICAGO PRESS 1972 A
- + (TRANS. FROM GERMAN WORK BY E. LAMPE, 1929)
- KLINE, M. MATHEMATICS IN THE MODERN WORLD.
FREEMAN, 1968. ABEHUV *
- + (50 READINGS FROM SCIENTIFIC AMERICAN)
- LANCASTER, P. MATHEMATICS: MODELS OF THE REAL WORLD.
PRENTICE-HALL, 1976. 9 AUYBC *
- + (G418, PP164)
- LAND, FRANK THE LANGUAGE OF MATHEMATICS.
MURRAY, 1975. 3 ABELHUV *
- + (WRITTEN AT ELEMENTARY LEVEL FOR PRIMARY TEACHERS)
- LIGHTHILL, J., ED. NEWER USES OF MATHEMATICS.
PENGUIN, 1978. 3 ALUVBC *
- + (G425, FULL OF MODERN NON-SCIENTIFIC APPLICATIONS, PP431)
- LING, J. MATHEMATICS ACROSS THE CURRICULUM
BLACKIE, 1977 ABJL
- + (SCHOOLS COUNCIL "CRITICAL REVIEW" PROJECT)
- MAINWARING, JAMES AN INTRODUCTION TO THE STUDY OF MAP PROJECTION
MACMILLAN 1ST EDN 1943 REPRINTED 1960 1 BUA
- +
- NAKI, D.P. AND THOMPSON, M. MATHEMATICAL MODELS AND APPLICATIONS
PRENTICE-HALL, 1973 A
- +
- MARCH, L. & STEADMAN, P. THE GEOMETRY OF ENVIRONMENT.
RIBA PUBLICATIONS, 1971. 5 ABCLUV *
- + (G410, MATHS, IN ARCHITECTURE - MANY UNEXPECTED APPLICATIONS, THE
FORMAL GEOMETRY IS SUBSTANTIAL, PP360)

MATHEMATICS FOR THE MAJORITY CROSSING SUBJECT BOUNDARIES
PROJECT

- CHITTO AND WINDUS, 1974 ABJL
- +
- MAYNARD-SMITH J. MATHEMATICAL IDEAS IN BIOLOGY.
CUP, 1968. 3 ACUV
- +(INCLUDES EFFECT OF SIZE ON STRUCTURE IN ANIMALS;MECHANICS OF
ANIMAL MOVEMENT;MODELS OF POPULATION GROWTH)
- MORONEY, M. J. FACTS FROM FIGURES. 2 ABCLMUY
- +(PENGUIN
(POPULAR APPROACH, GOOD AND CLEAR, HARD IN PARTS; SOME SECTIONS DATED)
- MOBLE B. APPLICATIONS OF UNDERGRADUATE MATHEMATICS.
MACMILLAN NY 1967 ACUV 0
- +
- NOTTINGHAM UNIVERSITY, BASIC SKILLS IN MATHS FOR ENGINEERING.
SHELL CENTRE FOR
MATHEMATICAL EDUCATION
NOTTINGHAM UNIVERSITY,1977 1 ABELMU *
- +(G41B. MATHEMATICS REQUIREMENTS OF CRAFT APPRENTICES, WITH DETAILED
EXAMPLES OF USE. FOR E1TB)
- POLYA, G. MATHEMATICAL METHODS IN SCIENCE
(MSG STUDIES XI)
- LELAND STANFORD JUNIOR UNIVERSITY ACCLMUY
- +(G419, PP234)
- ROBERTS, F.S. DISCRETE MATHEMATICAL MODELS WITH APPLICATIONS
TO SOCIAL, BIOLOGICAL AND ENVIRONMENTAL PROBLEMS
- PRENTICE-HALL, 1976 A
- +
- ROGERSON, A.T., ET AL MODERN MATHEMATICS IN THE SCIENCE LESSON.
CUP. 2 ABELTU
- +(G419, MODERN MATHS RELEVANT TO SC. TCHG. PP. 39)

- ROSEN, J. SYMMETRY DISCOVERED. 7 ABLMUY *
- + CUP (DISCURSIVE INTRODUCTION TO SYMMETRY FOR THE INTENDING PHYSICIST GROUP THEORY PRESENT BUT CAN BE OMITTED)
- ROYAL SOCIETY - INSTITUTE BIOLOGICAL EDUCATION COMMITTEE : REPORT OF THE
OF BIOLOGY WORKING PARTY ON MATHEMATICS FOR BIOLOGISTS
ROYAL SOCIETY, 1974 A
- + SAATY, T.L. THINKING WITH MODELS : MATHEMATICAL MODELS IN
THE PHYSICAL, BIOLOGICAL AND SOCIAL SCIENCES.
1972 A
- + SCHIFFER, M.M. APPLIED MATHEMATICS IN THE HIGH SCHOOL
SCHOOL MATHEMATICS STUDY GROUP, 1963 A
(STUDIES IN MATHEMATICS, VOL X)
- SCHNEIDER PUSH, PULL & LIFT 2 AK
HODDER & STOUGHTON
- + SCHNEIDER, N. HOW BIG IS BIG?
HODDER AND STOUGHTON, 1946 2 KA
(ORDERS OF MAGNITUDE IN THE UNIVERSE)
- SCHOOLS COUNCIL CONTINUING UNITS, BATCH 2 (14 TITLES)
MATHEMATICS PROJECT
LONDMANS, 1978 B AELTUV
- + ("PROGRAMMED" MATERIALS FOR INDEPENDENT LEARNING OF MATHEMATICS BY
NON-SPECIALISTS. TITLES: POSITIVE AND NEGATIVE NUMBERS, TRANSFORMATION
OF FORMULAE, INEQUALITIES, WORKING WITH RATIOS, USE OF
LOGARITHMS TO DETERMINE RELATIONSHIPS, THEORY OF LOGARITHMS 1,2,
RANK SIZE RULE, NEAREST NEIGHBOUR ANALYSIS, NETWORK ANALYSIS,
TRIGONOMETRY OF THE RIGHT-ANGLED TRIANGLE, THE GRAVITY MODEL,
FLOWCHARTS AND ALGORITHMS, CRITICAL PATH ANALYSIS)

- SCHOOLS COUNCIL SIXTH-FORM STUDENTS' CONTINUATION UNITS (3 TITLES)
 MATHEMATICS PROJECT:
 MATHEMATICS APPLICABLE 2,4 ABUV *
- + HEINEMANN(1975-8)
 (TITLES ARE LOGARITHMIC/EXPONENTIAL;CALCULUS APPLICABLE;ALGEBRA
 WITH APPLICATIONS PP178,132,236 RESPECTIVELY)
- SCHOOLS COUNCIL SIXTH-FORM STUDENTS' STARTER UNITS (5 TITLES)
 MATHEMATICS PROJECT:
 MATHEMATICS APPLICABLE 2,3 ALV *
- + HEINEMANN(1975-8)
 (TITLES ARE UNDERSTANDING INDICES;GEOMETRY FROM COORDINATES;
 INTRODUCTORY PROBABILITY;POLYNOMIAL MODELS;VECTOR MODELS.PP144,
 96,64,120,128 RESPECTIVELY)
- SCHOOLS COUNCIL SIXTH FORM MATHEMATICS CHANGES GEAR:TEACHING MATHEMATICS
 MATHEMATICS PROJECT: APPLICABLE (2 VOLS)
 MATHEMATICS APPLICABLE 1,1 ATUV *
- + HEINEMANN,1975 AND 1978
 (INTRODUCTORY BOOKS FOR STUDENTS AND TLACHERS RESPECTIVELY)
- SCIENTIFIC AMERICAN MATHEMATICAL THINKING IN THE BEHAVIOURAL SCIENCES
 (ED. MESSICK) AB 0
- + FREEMAN,1968.
- SELBY, H.A.(ED) NOTES OF LECTURES ON MATHEMATICS IN THE
 BEHAVIOURAL SCIENCES
 MATHEMATICAL ASSOCIATION OF AMERICA, 1973 A
- +
- SILLITOE, A. F. BRITAIN IN FIGURES; A HANDBOOK OF SOCIAL STATIS-
 TICS ALMV 0
- + PENGUIN, 1971.
- SINGH J. OPERATIONS RESEARCH. ABCU
- + PENGUIN, 1971.
- SINKOV, A. ELEMENTARY CRYPTANALYSIS, A MATHEMATICAL APPROACH
 RANDOM HOUSE, 1968 A
- +

- STEVENS, P.S. PATTERNS IN NATURE. 4 AJLMUYZ
PENGUIN, 1974.
+ (FULL OF VISUAL PATTERNS WITH MATHEMATICAL CONNECTIONS, SOME FOUND IN SEEMINGLY HAPHAZARD SITUATIONS)
- SUBNIKOV, A.V. & KOPTSIK, SYMMETRY IN SCIENCE AND ART
V.A. PLENUM PUBLISHING CORP. 1974 A
+
- SUTTON, D.G. MATHEMATICS IN ACTION. ABEUV 0
BELL, 1954.
+ (INTERESTING SIDE-LIGHTS FROM A PRACTISING MATHEMATICIAN)
- TAHUR, JUDITH M., ED. STATISTICS; A GUIDE TO THE UNKNOWN. ABELUV *
HOLDEN-DAY, 1972.
+ (EXCELLENT BACKGROUND READER TO THE MANY APPLICATIONS OF STATISTICS, PP430)
- THOMPSON, SIR D'ARCY W. ON GROWTH AND FORM. 6 ABLUV *
CUP, 1942, ABRIDGED EDN. EDITED BONNOR.
+ (CLASSIC ON MATHEMATICAL ASPECTS OF BIOLOGY)
- THRALL, R.W. AND OTHERS (EDS) SOME MATHEMATICAL MODELS IN BIOLOGY
UNIVERSITY OF MICHIGAN, 1967 A
+
- TWERSKY, V. CALCULUS AND SCIENCE
SCHOOL MATHEMATICS STUDY GROUP, 1967 A
+ (STUDIES IN MATHEMATICS, VOL XV)
- USPENSKI, V.A. SOME APPLICATIONS OF MECHANICS TO MATHEMATICS
PENGUIN, 1961 A
+
- WELLS, A.F. THE THIRD DIMENSION IN CHEMISTRY. 2 ABULV
OUP, 1960.
+ (EXPLAINS WHY SYMMETRY MATTERS TO CHEMISTS)

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